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REMARKS

Favorable reconsideration is respectfully requested in view of the above amendments and following remarks. Claim 1 has been amended to incorporate the subject matter of previous claims 7 and 10, and is supported by, for example, page 9, line 36 to page 10, line 3. Claims 8 and 9 have been amended editorially. Claims 5-7 and 10 have been canceled without prejudice or disclaimer. Claim 12 is new. Claim 12 depends from claim 1 and is supported by, for example, page 11, line 7. No new matter has been added. Claims 1-2, 4, 8, 9, 11 and 12 are pending.

Specification

The specification has been objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. Applicants submit that the use of a polyethylene wax is supported by, for example, page 14, line 27 of the specification.

Withdrawal of the objection is respectfully requested.

Information Disclosure Statement

Applicants submit herewith a copy of the English abstract for Japanese Publication No. 64-035562. According to Applicant's records, the abstract was submitted previously, but an additional copy is provided for the Examiner's convenience.

Claim Objections

Claims 5 and 6 have been objected to as being of improper dependent form. The objection is moot as claims 5 and 6 have been canceled.

Withdrawal of the objection is respectfully requested.

Claim rejections - 35 U.S.C. § 102

Claims 1, 2, 4-8 and 11 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by U.S. Publication No. 2003/0091923 (Kobayashi et al.). The rejection is rendered moot as the limitation in claim 10 has been incorporated into claim 1. Applicants do not concede the correctness of the rejection. Withdrawal of the rejection is respectfully requested.

Claim rejections - 35 U.S.C. § 103

Claims 1, 2 and 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2003/0091923 (Kobayashi et al.). Applicants respectfully traverse the rejection.

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Claim 1 requires a coating resin to include a fluorine modified silicone resin and an aminosilane coupling agent. Claim 1 requires the aminosilane coupling agent to be included in a range of 5 to 40 weight parts with respect to 100 weight parts of the coating resin. Claim 1 also requires the fluorine modified silicone resin to be a crosslinked fluorine modified silicone resin. The cross-linked fluorine modified silicone resin required by claim 1 is obtained by reacting an organosilicon compound containing a perfluoro alkyl group with polyorganosiloxane within a range of 3 to 20 weight parts with respect to 100 weight parts of the polyorganosiloxane. When the crosslinked fluorine modified silicone resin in amounts as required by claim 1 is included along with the aminosilane coupling agent, a negative charge is imparted to the toner while a sharp distribution of the charge amounts of the positively charged fluorine modified silicone resin layer is secured (see page 11, lines 21-26 of the specification). As a result, the charge amount can increase instantly with respect to the toner supplied at the time of printing (Id.). Moreover, the carrier according to claim 1 exhibits excellent transfer efficiency based on superior toner stripping properties with high durability (see page 11, lines 28-30 of the specification).

The advantageous effects of the carrier according to claim 1 are demonstrated in the Experimental data of the specification. Briefly, $C_8F_{17}CH_2CH_2Si(OCH_3)_3$, an organic silicon compound containing a perfluoro alklyl group, and polyorganosiloxane were allowed to react in amounts as required by claim 1 so as to obtain a crosslinked fluorine modified silicone resin (see page 24 of the specification). Carrier 2 was obtained by dissolving the crosslinked fluorine modified silicone resin with γ-aminopropyltriethoxysilane, an aminosilane coupling agent (see page 25 of the specification). As a comparative example, carrier 8 was obtained by dissolving a straight silicone resin (SR-2411) with γ-aminopropyltriethoxysilane (Id). Table 4 shows the results obtained when using the above carriers in a durability test (see page 30 of the specification). As shown in the table, carrier 2 exhibited a transfer efficiency of over 90%. Carrier 2 also showed an instant increase of the charge amount and exhibited stable characteristics in which the charge amount tended not to decrease at high temperature or high humidity, and in which the charge amount did not tend to change at low temperature or low humidity. On the other hand, when carrier 8 was used, transfer efficiency was decreased to below 60%. Moreover, fusion between the toner and the carrier tended to occur, and the carrier

resistance changed significantly. The charge amount also tended to decrease, and fog tended to increase. In addition, the charge amount increased at low temperature or low humidity, so that the image density was reduced.

Kobayashi discloses carriers in which a surface of a core is coated with a resin. The reference provides preferable components such as an aminosilane coupling agent, a silicone resin and a fluorine modified silicone resin. While the reference teaches that an aminosilane coupling agent should be used for negatively chargeable toners, the reference also notes that fluorine type silane coupling agents should be used for positively chargeable toners, and is silent as to the combined use of the two coupling agents for negatively chargeable toners. As such, the reference in no way teaches or suggests using an aminosilane coupling agent together with an organic silicon compound containing polyorganosiloxane and a perfluoro alkyl group in amounts as required by claim 1, so as to impart a negative charge to the toner while securing a sharp distribution of the charge amounts of the positively charged fluorine modified silicone resin layer, thereby increasing instantly the charge amount with respect to the toner supplied at the time of printing. In fact, although the reference is not limited to the Examples, Kobayashi only discloses as working models the use of straight silicone resin (SR-2411) and an aminosilane coupling agent as components of the carriers. Working example 3 of Kobayashi in particular corresponds substantially to carrier 8, which as indicated above cannot achieve the unexpected effects of the present invention.

The rejection contends that it would have been obvious to optimize the amounts of the silicone according to the formula given in paragraph [0031] and perfluoro alkyl units given in paragraph [0033] in order to reduce wear on the carrier particles. However, an appropriate charge amount for a negatively charged toner cannot be obtained when the formula given in paragraph [0031] and perfluoro alkyl units given in paragraph [0033] are used in a way as disclosed by Kobayashi. In fact, as indicated above, the reference notes that the fluorine type silane coupling agent should be used for positively chargeable toners. As such, it is unclear how it would have been obvious to optimize the amounts of the silicone according to Kobayashi when the reference is far from suggesting even using the polyorganosiloxane and the organic silicon compound containing the perfluoro alkyl group along with an aminosilane coupling agent to negatively charge a toner, let alone suggesting using the polyorganosiloxane and the organic

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silicon compound containing the perfluoro alkyl group in amounts as required by claim 1. Therefore, claim 1 and the dependent claims therefrom are patentable over Kobayashi.

In view of the above, favorable reconsideration in the form of a notice of allowance is requested. Any questions or concerns regarding this communication can be directed to the attorney-of-record, Douglas P. Mueller, Reg. No. 30,300, at (612) 455.3804.

Respectfully Submitted,

Dated: Oct 23, 2007

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